

## **REMARKS/ARGUMENTS**

Applicants respectfully request reconsideration and allowance of the subject  
5 application.

Claims 1-15 were originally filed.

Claims 1-5, 7-11, 13-15 are currently amended.

Accordingly, claims 1- 15 are pending.

### 10 **Claim Rejections – 35 USC §102**

In the Office Action, claims 1-15 are rejected under 35 USC 102(a) as being  
anticipated by Roustaei (U.S. Patent No. 5,777,314.)

### 15 **Claims 1 and 7:**

Applicant respectfully traverses Examiner's rejection.

With regards to claims 1 and 7, Examiner states in pertinent part that Roustaei  
(U.S. Patent No. 5,777,314.):

20 [...] and providing visual aiming assistance (col. 22, line 40-42, teaching  
assisting aiming the barcode symbol; and col. 7, lines 10-11, teaching the  
higher intensity light can be provided to assist aiming the barcode at the  
distances greater than 35 inches [...]

As quoted in Roustaei col. 22, lines 40-42, the reference recites:

25 [...] with the window portion 34 aimed at the bar code [...]

and col. 7, line 10-11 recites:

[...] A parabolic reflector 132 is included within the optical scanning head assembly with the flash lamp 130 at its center. This allows for illumination of the bar code. The higher intensity light will permit scanning at distances greater than 35 inches [...]

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Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that flash lamp produces high intensity light in a very short duration adequate to illuminate the target area for image sensor to capture the scanned image at distances greater than 35 inches, however the very short duration of illumination in a fraction of a second is not effective in assisting user aiming the scanner at the bar code and that Roustaei (U.S. Patent No. 5,777,314.) merely teaches aiming the window of the scanner at the bar code. Furthermore as quoted in Roustaei column 3 lines 47-50, the reference recites "If a bar code is scanned at close range, a lower level of light will provide a strong signal. However, at greater distances from the bar code, higher light intensity is necessary to achieve a good quality signals at the CCDs." Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that the CCDs mentioned in Roustaei are used for detecting the image, not for providing aiming assistance. This limitation is not contained in the Roustaei reference, which merely discloses aiming the window of the device at the image.

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Claim 1 and 7 have been amended to recite:

**Claim 1 (Currently amended):** A 2D data collection sensor comprising:

an image sensor; and

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an illumination module coupled to the image sensor, the illumination module comprising a plurality of ~~an array of one or more~~ reflectors that reflect lights of a light source and collectively generate a uniform illumination pattern both for illuminating a

target data area and providing visual aiming assistance, wherein there is a distinct light source element per reflector.

**Claim 7 (Currently amended):** A 2D imaging barcode reader comprising:

5 an image sensor; and

an illumination module coupled to the image sensor, the illumination module comprising a plurality of ~~an array of one or more~~ reflectors that reflect light of a light source and collectively generate a uniform illumination pattern both for illuminating a target data area and providing visual aiming assistance for a target barcode, wherein there  
10 is a distinct light source element per reflector.

Supports for these amendments are found in page 5, line 13 of the Applicant specification.

In order to anticipate an invention under 35 USC 102(a), the cited reference must  
15 contain all the limitations contained in a particular claim that the reference is deemed to anticipate. In the instant case, the present invention claims a 2D data collection sensor with a plurality of reflectors where the illumination pattern is generated for both illuminating the image and providing visual aiming assistance. As amended in claim 1 and 7 the limitation of a plurality of reflector is not contained in the Roustaei reference.  
20 Furthermore as illustrated above the limitation of visual aiming assistance is not contained in the Roustaei reference. Thus the present invention is not in any way anticipated by Roustaei. Accordingly, Applicants respectfully suggest that the § 102 (a) rejection to claim 1 and 7 be withdrawn and an indication of allowance be made.

**Claims 2 and 8:**

Applicant respectfully traverses Examiner's rejection.

With regards to claims 2 and 8, Examiner states in pertinent part that Roustaei

5 (U.S. Patent No. 5,777,314.):

[...] wherein the curvature and shape of the reflective surface determine a shape of the illumination pattern (col. 10, line 10-19, teaching the shape of barcode [...])

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As quoted in Roustaei column 10 lines 10-19, the reference recites:

[...] A spatial filter or aperture may be included within the optical module, disposed adjacent to or even integral with the lens assembly 18. The spatial filter 42 is an air slit with an orientation and configuration corresponding to the shape of the bar code being scanned [...]

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Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize as shown in Roustaei figure 3, spatial filter 42 is part of the lense assembly 18 and as shown in figure 1 the lense assembly 18 is used for capturing a light signal to the image sensor and that spatial filter 42 is oriented and configured corresponding to the shape of the bar code being scanned and that spatial filter 42 is not for determining the shape of the illumination pattern. Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that the limitation of the curvature and shape of the reflective surface determine a shape of the illumination pattern is not contained in Roustaei.

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Claim 2 and 8 have been amended to recite:

**Claim 2 (Currently amended):** The apparatus in claim 1, wherein each reflector comprises an opaque reflective surface with an aperture formed by the reflective surface,

the light source emits light onto the reflective surface and through the aperture onto the target data area, wherein a curvature and shape of the reflective surface ~~determine a shape of the illumination pattern surface~~ is curved for optimal uniformity and sharp edges of the illumination pattern; wherein each illumination pattern generated by each reflector  
5 matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern.

**Claim 8 (Currently amended):** The apparatus in claim 7, wherein each reflector comprises an opaque reflective surface with an aperture formed by the reflective surface, the light source emits light onto the reflective surface and through the aperture onto the  
10 target data area, wherein a curvature and shape of the reflective surface ~~determine a shape of the illumination pattern surface~~ is curved for optimal uniformity and sharp edges of the illumination pattern; wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern.

15 Supports for these amendments are found in original claims 3 and 9.

Supports for these amendments are also found in page 5, line 1-15 of the Applicant specification which recites:

[...] Figure 1 shows [...] with matching illuminator [...] light source 103 is reflected by the plurality of reflector 105 in the reflector array to collectively project an  
20 illumination pattern 110 [...]

Supports for these amendments are also found in page 6, line 1-5 of the Applicant specification which recites:

[...] Figure 2 provides a more detailed illustration of a light source 103 and a matching reflector 105 [...] An aperture 203 shaped by surface area [...] to produce a uniformly illuminated pattern 110 with sharp edges [...]

Supports for these amendments are also found in figure 1 of the Applicant  
5 drawing which illustrates 110 as “matching illumination pattern.”

Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that page 5, line 1-15 of the Applicant specification and figure 1 of Applicant drawing teaches the plurality of reflectors producing a matching illumination pattern 110 and that page 6, line 1-5 of the Applicant specification teaches a single reflector  
10 in figure 2 producing the same an illumination pattern 110. Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that the limitation of each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern is not contained in Roustaei as evidenced by figure 9, 10 and 11 of Roustaei reference.

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In order to anticipate an invention under 35 USC 102(a), the cited reference must contain all the limitations contained in a particular claim that the reference is deemed to anticipate. In the instant case, as amended in claim 2 and 8, the present invention claims a 2D data collection sensor and a 2D imaging barcode reader with a plurality of reflectors  
20 wherein the surface of each reflector, with a distinct light source, is curved for optimal uniformity and sharp edges of the illumination pattern; wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern. As discussed above this limitation is not contained in Roustaei. Thus the present invention is not in any way

anticipated by Roustaei. Accordingly, Applicants respectfully suggest that the § 102 (a) rejection to claim 2 and 8 be withdrawn and an indication of allowance be made.

**Claims 3 and 9:**

5 Applicant respectfully traverses Examiner's rejection.

Claim 3 and 9 have been amended to recite:

**Claim 3 (Currently amended):** The apparatus in claim 2, ~~wherein the shape of the~~  
10 ~~reflecting surface is curved for optimal uniformity and sharp edges of the illumination~~  
~~pattern; wherein the uniform illumination pattern matches the field of view of the image~~  
sensor.

**Claim 9 (Currently amended):** The apparatus in claim 8, ~~wherein the shape of the~~  
15 ~~reflecting surface is curved for optimal uniformity and sharp edges of the illumination~~  
~~pattern; wherein the uniform illumination pattern matches the field of view of the image~~  
sensor.

Supports for these amendments are found in page 2, line 20-26 of the Applicant  
20 specification which recites:

Single dot pattern cannot indicate the effective field of view [...] A need exist for  
a 2D imaging data collection device which solves these problems.

Supports for these amendments are also found in page 3, line 9-13 of the  
Applicant specification which recites:

The shape of the individual reflectors [...] produce the particular uniformity and shape of the illumination pattern. An image sensor senses light reflected back by the target image.

Applicant respectfully submits that one of ordinary skill in the art at the time of  
5 the invention would recognize that the present invention teaches that the uniform illumination pattern matches the field of view of the image sensor.

In order to anticipate an invention under 35 USC 102(a), the cited reference must contain all the limitations contained in a particular claim that the reference is deemed to  
10 anticipate. In the instant case, as amended in claim 3 and 9, the present invention claims a 2D data collection sensor and a 2D imaging barcode reader with a plurality of reflectors wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern that matches the field of view of the image sensor. As discussed  
15 above this limitation is not contained in Roustaei. Thus the present invention is not in any way anticipated by Roustaei. Accordingly, Applicants respectfully suggest that the § 102 (a) rejection to claim 3 and 9 be withdrawn and an indication of allowance be made.

**Claims 4 and 10:**

20 Applicant respectfully traverses Examiner's rejection.

With regards to claims 4 and 10, Examiner states in pertinent part that Roustaei (U.S. Patent No. 5,777,314.):

[...] wherein a curvature and a shape of the reflective surface inherently produce a shape of the illumination pattern (col. 10, line 10-19) [...]



As quoted in Roustaei column 10 lines 10-19, the reference recites:

5                   [...] A spatial filter or aperture may be included within the optical module,  
disposed adjacent to or even integral with the lens assembly 18. The spatial filter  
42 is an air slit with an orientation and configuration corresponding to the shape  
of the bar code being scanned [...]

Applicant respectfully submits that one of ordinary skill in the art at the time of  
10 the invention would recognize as shown in Roustaei figure 3, spatial filter 42 is part of the lense  
assembly 18 and as shown in figure 1 the lense assembly 18 is used for capturing a light signal to  
the image sensor and that spatial filter 42 is oriented and configured corresponding to the shape of  
the bar code being scanned and that spatial filter 42 is not for determining the shape of the  
illumination pattern. Applicant respectfully submits that one of ordinary skill in the art at the  
15 time of the invention would recognize that the limitation of the curvature and shape of the  
reflective surface determine a shape of the illumination pattern is not contained in  
Roustaei.

Claim 4 and 10 have been amended to recite:

20 **Claim 4 (Currently amended):** The apparatus in claim 1, wherein each reflector  
comprises a transparent solid with a reflective internal surface, light from the light source  
enters the solid, is reflected by the reflective surface and exits through the solid onto the  
target data area, wherein a curvature and a shape of the reflective surface ~~produces a~~  
~~shape of the illumination pattern~~ is curved for optimal uniformity and sharp edges of the  
25 illumination pattern; wherein each illumination pattern generated by each reflector  
matches all other illumination pattern generated by all other reflectors and collectively  
generate a uniform illumination pattern. **Claim 10 (Currently amended):** The apparatus  
in claim 7, wherein each reflector comprises a transparent solid with a reflective internal

surface, light from the light source enters the solid, is reflected by the reflective surface and exits through the solid onto the target data area, wherein a curvature and a shape of the reflective surface ~~produces a shape of the illumination pattern~~ is curved for optimal uniformity and sharp edges of the illumination pattern; wherein each illumination pattern  
5 generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern. Supports for these amendments are found in original claims 5 and 11.

Supports for these amendments are also found in page 5, line 1-15 of the Applicant specification which recites:

10 [...] Figure 1 shows [...] with matching illuminator [...] light source 103 is reflected by the plurality of reflector 105 in the reflector array to collectively project an illumination pattern 110 [...]

Supports for these amendments are also found in page 6, line 1-5 of the Applicant specification which recites:

15 [...] Figure 2 provides a more detailed illustration of a light source 103 and a matching reflector 105 [...] An aperture 203 shaped by surface area [...] to produce a uniformly illuminated pattern 110 with sharp edges [...]

Supports for these amendments are also found in figure 1 of the Applicant drawing which illustrates 110 as “matching illumination pattern.”

20 Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that page 5, line 1-15 of the Applicant specification and figure 1 of Applicant drawing teaches the plurality of reflectors producing a matching illumination pattern 110 and that page 6, line 1-5 of the Applicant specification teaches a single reflector in figure 2 producing the same an illumination pattern 110. Applicant respectfully submits that

one of ordinary skill in the art at the time of the invention would recognize that the limitation of each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern is not contained in Roustaei as evidenced by figure 9, 10 and 11 of Roustaei reference.

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In order to anticipate an invention under 35 USC 102(a), the cited reference must contain all the limitations contained in a particular claim that the reference is deemed to anticipate. In the instant case, as amended in claim 4 and 10, the present invention claims a 2D data collection sensor and a 2D imaging barcode reader with a plurality of reflectors  
10 wherein the surface of each reflector, with a distinct light source, is curved for optimal uniformity and sharp edges of the illumination pattern; wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern. As discussed above this limitation is not contained in Roustaei. Thus the present invention is not in any way  
15 anticipated by Roustaei. Accordingly, Applicants respectfully suggest that the § 102 (a) rejection to claim 4 and 10 be withdrawn and an indication of allowance be made.

**Claims 5 and 11:**

Applicant respectfully traverses Examiner's rejection.

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Claim 5 and 11 have been amended to recite:

**Claim 5 (Currently amended):** The apparatus in claim 4, ~~wherein the shape of the reflecting surface is curved for optimal uniformity and sharp edges of the illumination~~

~~pattern; wherein the uniform illumination pattern matches the field of view of the image sensor.~~

**Claim 11 (Currently amended):** The apparatus in claim 10, ~~wherein the shape of the~~  
5 ~~reflecting surface is curved for optimal uniformity and sharp edges of the illumination~~  
~~pattern; wherein the uniform illumination pattern matches the field of view of the image~~  
~~sensor.~~

Supports for these amendments are found in page 2, line 20-26 of the Applicant  
10 specification which recites:

Single dot pattern cannot indicate the effective field of view [...] A need exist for  
a 2D imaging data collection device which solves these problems.

Supports for these amendments are also found in page 3, line 9-13 of the  
Applicant specification which recites:

15 The shape of the individual reflectors [...] produce the particular uniformity and  
shape of the illumination pattern. An image sensor senses light reflected back by the  
target image.

Applicant respectfully submits that one of ordinary skill in the art at the time of  
the invention would recognize that the present invention teaches that the uniform  
20 illumination pattern matches the field of view of the image sensor.

In order to anticipate an invention under 35 USC 102(a), the cited reference must  
contain all the limitations contained in a particular claim that the reference is deemed to

anticipate. In the instant case, as amended in claim 5 and 11, the present invention claims a 2D data collection sensor and a 2D imaging barcode reader with a plurality of reflectors wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern that matches the field of view of the image sensor. As discussed above this limitation is not contained in Roustaei. Thus the present invention is not in any way anticipated by Roustaei. Accordingly, Applicants respectfully suggest that the § 102 (a) rejection to claim 5 and 11 be withdrawn and an indication of allowance be made.

10 **Claims 6 and 12:**

Applicant respectfully submits that claim 2 as amended is not anticipated by Roustaei and is allowable. Claim 6 depends on claim 2, thus is allowable.

Applicant respectfully submits that claim 8 as amended is not anticipated by Roustaei and is allowable. Claim 12 depends on claim 8, thus is allowable.

15 **Claims 13:**

Applicant respectfully traverses Examiner's rejection.

With regards to claims 13, Examiner that:

since this claim recites similar components as in claim 1 and 7, the discussion of claims 1 and 7 apply hereto.

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Applicant respectfully submits that claim 1 and 7 as amended are not anticipated by Roustaei and are allowable. Claim 13 recites similar components as in claim 1 and 7, thus is allowable.

25 **Claims 14 and 15:**

Applicant respectfully traverses Examiner's rejection.

With regards to claims 14 and 15, Examiner states in pertinent part that Roustaei (U.S. Patent No. 5,777,314.):

5                    [...] and providing visual aiming assistance (col. 22, line 40-42, teaching assisting aiming the barcode symbol; and col. 7, lines 10-11, teaching the higher intensity light can be provided to assist aiming the barcode at the distances greater than 35 inches [...])

As quoted in Roustaei col. 22, lines 40-42, the reference recites:

10                    [...] with the window portion 34 aimed at the bar code [...]

and col. 7, line 10-11 recites:

15                    [...] A parabolic reflector 132 is included within the optical scanning head assembly with the flash lamp 130 at its center. This allows for illumination of the bar code. The higher intensity light will permit scanning at distances greater than 35 inches [...]

Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that flash lamp produces high intensity light in a very short duration adequate to illuminate the target area for image sensor to capture the scanned  
20 image at distances greater than 35 inches, however the very short duration of illumination in a fraction of a second is not effective in assisting user aiming the scanner at the bar code and that Roustaei (U.S. Patent No. 5,777,314.) merely teaches aiming the window of the scanner at the bar code. Furthermore as quoted in Roustaei column 3 lines 47-50, the reference recites "If a bar code is scanned at close range, a lower level of light will  
25 provide a strong signal. However, at greater distances from the bar code, higher light intensity is necessary to achieve a good quality signals at the CCDs." Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that the CCDs mentioned in Roustaei are used for detecting the image, not for

providing aiming assistance. This limitation is not contained in the Roustaei reference, which merely discloses aiming the window of the device at the image.

Claim 14 and 15 have been amended to recite:

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**Claim 14 (Currently amended):** A method for 2D data collection comprising:

projecting an illumination pattern on a target image area, the illumination pattern comprising a shape and uniformity generated by a plurality ~~an array~~ of reflectors coupled to a data collection image sensor, wherein the reflectors reflect light from a light source, and wherein the illumination pattern provides both image illumination and visual aiming assistance, wherein there is a distinct light source element per reflector; wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern; and

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reading data from the target image area via an image sensor.

**Claim 15 (Currently amended):** A method for 2D barcode data collection comprising:

projecting an illumination pattern on a target image area, the illumination pattern comprising a shape and uniformity generated by a plurality ~~an array~~ of reflectors coupled to a data collection image sensor, wherein the reflectors reflect light from a light source, and wherein the illumination pattern provides both image illumination and visual aiming assistance, wherein there is a distinct light source element per reflector; wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern;

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and

reading data from the target image area via an image sensor.

Supports for these amendments are found in page 5, line 13 of the Applicant specification.

Supports for these amendments are also found in page 5, line 1-15 of the Applicant specification which recites:

[...] Figure 1 shows [...] with matching illuminator [...] light source 103 is reflected by the plurality of reflector 105 in the reflector array to collectively project an illumination pattern 110 [...]

Supports for these amendments are also found in page 6, line 1-5 of the Applicant specification which recites:

[...] Figure 2 provides a more detailed illustration of a light source 103 and a matching reflector 105 [...] An aperture 203 shaped by surface area [...] to produce a uniformly illuminated pattern 110 with sharp edges [...]

Supports for these amendments are also found in figure 1 of the Applicant drawing which illustrates 110 as “matching illumination pattern.”

Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that page 5, line 1-15 of the Applicant specification and figure 1 of Applicant drawing teaches the plurality of reflectors producing a matching illumination pattern 110 and that page 6, line 1-5 of the Applicant specification teaches a single reflector in figure 2 producing the same an illumination pattern 110. Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would recognize that the limitation of each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern is not contained in Roustaei as evidenced by figure 9, 10 and 11 of Roustaei reference.

In order to anticipate an invention under 35 USC 102(a), the cited reference must contain all the limitations contained in a particular claim that the reference is deemed to



anticipate. In the instant case, as amended in claim 14 and 15, the present invention claims a method for 2D data collection and 2D barcode data collection with a plurality of reflectors wherein each illumination pattern generated by each reflector matches all other illumination pattern generated by all other reflectors and collectively generate a uniform illumination pattern. As discussed above this limitation is not contained in Roustaei. Thus the present invention is not in any way anticipated by Roustaei. Accordingly, Applicants respectfully suggest that the § 102 (a) rejection to claim 14 and 15 be withdrawn and an indication of allowance be made.

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## CONCLUSION

In view of the foregoing, Applicant believes that all of the claims 1-15 are now in condition for allowance and respectfully requests the Examiner to issue a timely Notice of Allowance. If for any reason, the Examiner believes any of the claims are not in condition for allowance, he is encouraged to phone the undersigned at (650) 325-4999 so that any remaining issues may be resolved.

The above changes are believed not to add new matter, as support is found in the specification.

Respectfully submitted,



Dennis S. Fernandez  
Reg. No. 34,160

Date: 9/2/05

Address: Fernandez & Associates LLP  
1047 El Camino Real, Suite 201  
Menlo Park, CA 94025

Phone: (650) 325-4999  
Fax: (650) 325-1203  
Email: [iploft@iploft.com](mailto:iploft@iploft.com)